

What is claimed is:

1. A color liquid crystal display having liquid crystal sealed between first and second substrates opposing one another and each 5 having electrodes disposed on its opposing side, wherein said first substrate comprises:

a plurality of pixel electrodes for driving said liquid crystal and which is spaced apart from one another;

10 a data line for supplying display data to associated electrodes among said plurality of pixel electrodes, said data line arranged overlapping predetermined electrodes among said plurality of pixel electrodes; and

15 color filters formed in an interlayer between said data line and the associated electrodes among said plurality of pixel electrodes.

2. The display defined in Claim 1 wherein a common electrode is formed on a side of said second substrate facing said plurality of pixel electrodes.

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3. The display defined in Claim 2 wherein said common electrode includes orientation control windows opened through said common electrode in positions corresponding to each of said plurality of pixel electrodes.

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4. The display defined in Claim 3 wherein said data line overlaps said orientation control windows within regions of the associated pixel electrodes.

5. The display defined in Claim 1 wherein said liquid crystal has negative anisotropy of dielectric constant.

6. The display defined in Claim 1 wherein initial orientation 5 of said liquid crystal is controlled to a vertical direction with respect to the plane of the substrates.

7. The display defined in Claim 6 wherein:

a common electrode is formed on a side of said second 10 substrate facing said plurality of pixel electrodes;

said common electrode includes orientation control windows opened through said common electrode in positions corresponding to each of said plurality of pixel electrodes; and

15 rubbing-less type vertical orientation films are provided on respective surfaces of said first and second substrates contacting the liquid crystal.

8. The display defined in Claim 7 wherein said data line overlaps 20 said orientation control windows within regions of the associated pixel electrodes.

9. The display defined in Claim 1 wherein:

each of said plurality of pixel electrodes is connected to 25 said data line to which the pixel electrode is assigned via an associated switch element; and

said color filter is absent from a contact region between said switch element and the associated electrode among said plurality of pixel electrodes.

10. The display defined in Claim 9 wherein said switch element is a thin film transistor.

11. The display defined in Claim 1 wherein said data line is 5 formed in a layer closer to said first substrate than the associated electrodes among said plurality of pixel electrodes, said data line and the associated electrodes separated by said color filters disposed therebetween.

10 12. The display defined in Claim 11 wherein:
switch elements are formed underneath each of said plurality of pixel electrodes;
each of said plurality of pixel electrodes is connected to said data line to which the pixel electrode is assigned via an 15 associated switch element; and
said color filter is absent from a contact region between a switch element and an associated electrode among said plurality of pixel electrodes.

20 13. The display defined in Claim 1 wherein an end of at least a portion of said color filter extends outward from an end of the associated electrode among said plurality of pixel electrode by approximately $1\mu\text{m}$.

25 14. The display defined in Claim 1 wherein at least a portion of said color filter is formed larger than the associated electrode among said plurality of pixel electrode.

15. The display defined in Claim 14 wherein

a counter electrode is formed on a side of said second substrate facing said plurality of pixel electrodes; and
said counter electrode includes orientation control windows opened through said counter electrode in positions corresponding
5 to each of said plurality of pixel electrodes.

16. The display defined in Claim 15 wherein rubbing-less type vertical orientation films are provided on respective surfaces of said first and second substrates contacting the liquid crystal.

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17. The display defined in Claim 14 wherein:
said liquid crystal has negative anisotropy of dielectric constant; and
initial orientation of said liquid crystal is controlled to
15 a vertical direction with respect to the plane of the substrates.

18. The display defined in Claim 1 wherein
an orientation film is provided on at least a side of said first substrate contacting the liquid crystal; and
20 an orientation control slope face that slants with respect to plane direction of the substrates is formed on at least a side of said orientation film contacting the liquid crystal.

19. The display defined in Claim 18 wherein said orientation film
25 is a vertical orientation film for controlling initial orientation of said liquid crystal to a vertical direction.

20. The display defined in Claim 18 wherein said data line is formed in a layer closer to said first substrate than the associated

electrodes among said plurality of pixel electrodes, said data line and the associated electrodes separated by said color filters disposed therebetween.

5 21. The display defined in Claim 18 wherein said data line overlaps a region having said orientation control slope face within regions of the associated pixel electrodes.

10 22. A color liquid crystal display having liquid crystal sealed between first and second substrates opposing one another and each having electrodes disposed on its opposing side, wherein said first substrate comprises:

a plurality of pixel electrodes for driving said liquid crystal and which is spaced apart from one another;

15 a data line for supplying display data to associated electrodes among said plurality of pixel electrodes, said data line arranged overlapping predetermined electrodes among said plurality of pixel electrodes; and

20 color filters formed in an interlayer between said data line and the associated electrodes among said plurality of pixel electrodes; wherein

25 said second substrate comprises a common electrode including orientation control windows opened through said common electrode in positions corresponding to each of said plurality of pixel electrodes; and

said data line overlaps said orientation control windows within regions of the associated pixel electrodes.

23. The display defined in Claim 22 wherein said liquid crystal

has negative anisotropy of dielectric constant.

24. The display defined in Claim 22 wherein initial orientation of said liquid crystal is controlled to a vertical direction with 5 respect to the plane of the substrates.

25. The display defined in Claim 22 wherein:
each of said plurality of pixel electrodes is connected to
said data line to which the pixel electrode is assigned via an
10 associated switch element; and
said color filter is absent from a contact region between
said switch element and the associated electrode among said
plurality of pixel electrodes.

15 26. The display defined in Claim 22 wherein at least a portion
of said color filter is formed larger than the associated electrode
among said plurality of pixel electrode.

27. A color liquid crystal display having liquid crystal sealed
20 between first and second substrates opposing one another and each
having electrodes disposed on its opposing side, wherein said first
substrate comprises:
a plurality of pixel electrodes spaced apart from one another
for driving said liquid crystal;

25 a data line for supplying display data to associated
electrodes among said plurality of pixel electrodes, said data line
arranged overlapping predetermined electrodes among said
plurality of pixel electrodes; and

color filters formed in an interlayer between said data line

and the associated electrodes among said plurality of pixel electrodes; wherein

an orientation film is provided on at least a side of said first substrate contacting the liquid crystal;

5 an orientation control slope face that slants with respect to plane direction of the substrates is formed on at least a side of said orientation film contacting the liquid crystal; and

a region having said orientation control slope face and said data line are overlapped.

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28. The display defined in Claim 27 wherein said liquid crystal has negative anisotropy of dielectric constant.

15 29. The display defined in Claim 27 wherein initial orientation of said liquid crystal is controlled to a vertical direction with respect to the plane of the substrates.

30. The display defined in Claim 27 wherein:

20 each of said plurality of pixel electrodes is connected to said data line to which the pixel electrode is assigned via an associated switch element; and

said color filter is absent from a contact region between said switch element and the associated electrode among said plurality of pixel electrodes.

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31. The display defined in Claim 27 wherein at least a portion of said color filter is formed larger than the associated electrode among said plurality of pixel electrode.